

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number
WO 2004/053079 A3

(51) International Patent Classification⁷: **C12N 15/12**,
15/11, 15/00, C12Q 1/68, C12P 21/02, A61K 31/7088,
31/711

(74) Agents: **LICATA, Jane, Massey et al.**; Licata & Tyrrell
P.C., 66 E. Main Street, Marlton, NJ 08053 (US).

(21) International Application Number:
PCT/US2003/038855

(22) International Filing Date: 8 December 2003 (08.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

| | | |
|------------|------------------------------|----|
| 60/431,321 | 6 December 2002 (06.12.2002) | US |
| 60/431,301 | 6 December 2002 (06.12.2002) | US |
| 60/484,584 | 30 June 2003 (30.06.2003) | US |
| 60/518,607 | 7 November 2003 (07.11.2003) | US |

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **DI-ADEXUS, INC.** [US/US]; 343 Oyster Point Boulevard, South San Francisco, CA 94080 (US).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **MACINA, Roberto**, A. [AR/US]; 4118 Crescendo Avenue, San Jose, CA 95136 (US). **TURNER, Leah, R.** [US/US]; 939 Rosette Court, Sunnyvale, CA 94086 (US). **SUN, Yongming** [CN/US]; 551 Shoal Circle, Redwood City, CA 94065 (US). **LIU, Shu-Hui** [—/US]; 441 Cork Harbour Circle, #H, Redwood City, CA 94539 (US). **CHEN, Huel-Mei** [US/US]; 101 Lockwood Lane, Pleasant Hill, CA 94523 (US).

(88) Date of publication of the international search report:
7 April 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS, SPLICE VARIANTS AND METHODS RELATING TO OVARIAN SPECIFIC GENES AND PROTEINS

(57) Abstract: The present invention relates to newly identified nucleic acid molecules and polypeptides present in normal and neoplastic ovarian cells, including fragments, variants and derivatives of the nucleic acids and polypeptides. The present invention also relates to antibodies to the polypeptides of the invention, as well as agonists and antagonists of the polypeptides of the invention. The invention also relates to compositions containing the nucleic acid molecules, polypeptides, antibodies, agonists and antagonists of the invention and methods for the use of these compositions. These uses include identifying, diagnosing, monitoring, staging, imaging and treating ovarian cancer and non-cancerous disease states in ovarian, identifying ovarian tissue, monitoring and identifying and/or designing agonists and antagonists of polypeptides of the invention. The uses also include gene therapy, production of transgenic animals and cells, and production of engineered ovarian tissue for treatment and research.



WO 2004/053079 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/38855

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 15/12, 15/11, 15/00; C12Q 1/68; C12P 21/02; A61K 31/7088, 31/711
US CL : 536/23.1, 23.5; 435/6, 320.1, 69.1; 514/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1, 23.5; 435/6, 320.1, 69.1; 514/44

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Compugen, SEQ ID NOs: 1 and 129

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | NETO, E.D. et al, Shotgun sequencing of the human transcriptome with ORF expressed sequence Tags. Proceedings of the National Academy of Science, USA. 28 March 2000, Vol. 97, No. 7, pages 3491-3496, see especially the alignment attached to the reference (compare SEQ ID NO: 1, nucleotides 221-522 to BX281918, nucleotides 1-302). | 1-6, 8, and 9 |
| Y | | 10 |



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

11 January 2005 (11.01.2005)

Date of mailing of the international search report

31 JAN 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

James Martinell

Telephone No. 571-272-1600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/38855

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-10 and 15-18 as they pertain to nucleic acids encoding SEQ ID NO: 129

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest.

☐

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/38855

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-10 and 15-18, drawn to nucleic acids, nucleic acid molecular hybridization assays, vectors, host cells, methods for producing polypeptides, kits, vaccines, and methods of treatment using nucleic acids.

Group II, claim(s) 11, 12, and 16-18, drawn to polypeptides, kits, vaccines, and methods of treatment using polypeptides.

Group III, claim(s) 13-15, drawn to antibodies and protein binding assays.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The nucleic acids, vectors, host cells, nucleic acid containing kits, nucleic acid vaccines, and methods of treatment using nucleic acids of Group I all have the special technical features of the properties of SEQ ID NOs: 129-295 or nucleic acid sequences that encode SEQ ID NOs: 1-128, which are not shared by either of Groups II or III. Group II is directed to polypeptide, polypeptide vaccines, and methods of treatment using polypeptides that all have the special technical features of SEQ ID NOs: 1-128 or sequences that are encoded by SEQ ID NOs: 129-295, which are not shared by Groups I or III. Since each of the three Groups mentions or requires the use of 295 separate and unrelated nucleic acids and/or polypeptides, the total number of inventions is $3 \times 295 = 885$.

Each of the Groups mentions or requires the use of a large number (295) of separate and unrelated nucleic acids and/or polypeptides. No matter which additional Group(s) applicant elects, applicant is further required to select for search one SEQ ID NO within the Group(s) for search. In any event, the first mentioned SEQ ID NO in Group I will be searched. Any additional SEQ ID NO to be searched requires one additional search fee per SEQ ID NO. In the absence of payment of additional search fee(s) only the first mentioned SEQ ID NO in Group I will be searched. Should applicant pay fee(s) for additional Groups to be searched, the first mentioned SEQ ID NO within the selected Group will be searched unless applicant directs otherwise.